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EXAMINER

WINDER, PATRICE L

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2145

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the content does not incorporate feature recited in the embodiment of Applicant's invention in the current application, i.e. does not mention non-TCP/IP networks. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 4-5, 7, 10-15, 18-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Hite et al., USPN 7,213,061 B1 (hereafter referred to as Hite)

[claim 1] Hite taught a component that discovers devices on disparate networks within industrial control systems (system 10), comprising:

an interface component that couples at least one TCP/IP-based network with one or more non-TCP/IP-based networks (control network server 40, column 5, lines 6-15);
and,

a service component (Internet Appliance (IA) server 14, column 5, lines 6-15) that searches [routes commands and instructions from source devices to target devices] the at least one TCP/IP-based network and the one or more non-TCP/IP-based networks for devices [identified by device ID] and returns information indicative of discovered devices (column 3, lines 21-30; column 5, lines 33-37).

[claim 2] Hite taught the non-TCP/IP-based networks are employed in connection with one or more industrial protocols (CAN networks, column 2, lines 63-67).

[claim 4] Hite taught the interface component and the service component reside within a microprocessor-based system (column 9, lines 21-25) or an EtherNet/IP-based module.

[claim 5] Hite taught the interface component provides Web-based communication with the devices (column 9, lines 39-44).

[claim 7] Hite taught the service component detects when a network or device is added or removed and dynamically updates the returned information (Provisions (and removes) system ID for different content providers, column 6, lines 10-14; column 7, lines 16-23. Dynamically leases and releases addresses for industrial devices, column 37, lines 45-65).

[claim 10] Hite taught the interface component is provided with at least one of the following to facilitate discovering devices: a particular device; a device type; a device characteristic; a requester identity; a keyword; and a link to a search engine (Provisions (and removes) system ID for different content providers, column 6, lines 10-14; column 7, lines 16-23. Dynamically leases and releases addresses for industrial devices, column 37, lines 45-65).

[claim 11] Hite taught the device characteristic indicates the search is directed to at least one of configured devices, added devices, removed devices and faulted devices (provisioned devices and added devices).

[claim 12] Hite taught the service component filters results prior to returning information (presently results formatted for a web page, column 4, lines 26-32).

[claim 13] Hite taught a portal that provides Web communication with industrial devices residing on TCP/IP and non-TCP/IP networks (IA server 14), comprising:

a proxy component that facilitates access to the TCP/IP and non-TCP/IP networks (column 5, lines 6-16, 26-31); and

an engine that discovers industrial devices residing on the TCP/IP and non-TCP/IP networks and provides information related to the industrial devices (Discover by dynamic device address, a master controller responds to requesting devices, column 37, lines 45-65. Master controller receives requests from CAN interfaces and web browser, column 3, lines 3-5, 49-50), the information can be utilized in connection with the proxy to communicate with the industrial devices (industrial devices, column 2, lines 51-60; column 5, lines 20-27).

[claim 14] Hite taught the proxy component employs software that provides Web functionality for industrial devices on the non-TCP/IP networks (column 5, lines 29-37).

[claim 15] Hite taught the proxy component facilitates communication between industrial devices residing on similar and different networks (column 9, lines 13-20, 45-51).

[claim 18] Hite taught the engine dynamically discovers newly added and removed networks and industrial devices and dynamically updates the related information

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(Provisions (and removes) system ID for different content providers, column 6, lines 10-14; column 7, lines 16-23. Dynamically leases and releases addresses for industrial devices, column 37, lines 45-65).

[claim 19] Hite taught the engine employs intelligence that facilitates locating and discovering industrial devices and returning related information (column 6, lines 5-14), the intelligence employs at least one of a statistic, a probability, a classifier (classified according to protocol, column 6, lines 14-19), and an inference.

[claim 20] Hite taught the proxy component facilitates one or more of the following: controlling, configuring, monitoring, and communicating with the industrial devices (column 6, lines 33-43).

[claim 21] Hite taught the proxy component further comprises the ability to retrieve industrial device-related information from one or more of a manual, a web page, a log, a history and a file (column 5, lines 54-57).

[claim 22] Hite taught a configurable security component that verifies and validates authorization to one or more of the industrial devices (authentication challenge, column 51, lines 40-47).

[claim 23] Hite taught a method for servicing a Web-based request for available devices residing on a non-TCP/IP-based network (method of system 10), comprising:

- receiving the Web-based request (column 3, lines 65-67; column 4, lines 1-2);

- searching for non-TCP/IP networks based at least in part on information within the Web-based request [routes commands and instructions from source devices to target devices as identified by system ID and device ID];

discovering devices residing on the non-TCP/IP networks (Discover by dynamic device address, a master controller responds to requesting devices, column 37, lines 45-65. Master controller receives requests from CAN interfaces and web browser, column 3, lines 3-5, 49-50); and

returning information indicative of the non-TCP/IP networks and the devices to a requester (column 2, lines 51-60; column 5, lines 20-27).

[claim 24] Hite taught employing software that provides Web functionality for the devices on the non-TCP/IP networks (column 5, lines 29-37).

[claim 25] Hite taught the Web-based request comprises information related to at least one of the following: a request originator, a location, a time, a date, a sort technique, a filter, and a unique identifier (unique IP address, column 4, lines 12-16).

[claim 26] Hite taught dynamically updating the returned information when a network or device is added or removed (Provisions (and removes) system ID for different content providers, column 6, lines 10-14; column 7, lines 16-23. Dynamically leases and releases addresses for industrial devices, column 37, lines 45-65).

[claim 27] Hite taught method to discover industrial devices residing on a non-TCP/IP-based network (method of system 10), comprising:

employing a proxy that couples TCP/IP and non-TCP/IP networks and provides Web-based functionality for the non-TCP/IP-based networks (column 5, lines 6-16, 26-37);

searching the one or more non-TCP/IP-based networks for industrial devices (Provisions (and removes) system ID for different content providers, column 6, lines 10-

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14; column 7, lines 16-23. Dynamically leases and releases addresses for industrial devices, column 37, lines 45-65); and

returning information associated with the discovered industrial devices (column 2, lines 51-60; column 5, lines 20-27).

[claim 28] Hite taught employing security to mitigate unauthorized access to the discovered devices (authentication challenge, column 51, lines 40-47).

[claim 29] Hite taught employing intelligence to facilitate discovering devices and returning device-related information (column 6, lines 5-14).

[claim 30] Hite taught a system that facilitates Web access to industrial devices residing on disparate networks (system 10), comprising:

means for interacting with TCP/IP and non-TCP/IP networks (control network server 40, column 5, lines 6-15);

means for discovering industrial devices associated with the TCP/IP and non-TCP/IP-based networks (Provisions (and removes) system ID for different content providers, column 6, lines 10-14; column 7, lines 16-23. Dynamically leases and releases addresses for industrial devices, column 37, lines 45-65);

means for returning information indicative of the discovered devices (column 2, lines 51-60; column 5, lines 20-27); and

means for accessing the discovered devices (column 5, lines 6-16, 26-31).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 3, 6, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hite.

[claim 3] Hite taught the industrial protocols comprise at least one of Ethernet, DeviceNet and ControlNet (Ethernet, column 2, lines 53-67). Hite does not specifically teach Ethernet/IP. However, Hite taught that lower layer protocol uses IP as the lower layer protocol in system 10. "Official notice" is taken that Ethernet/IP is well known in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made that incorporating Ethernet/IP in Hite's system for interconnecting CAN networks and the Internet would have been an upgrade. The motivation would have been gain the advantages associated with Ethernet/IP which is specialized for control area networks.

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7. [claim 6] Hite taught the service component re-discovers networks and devices (Provisions (and removes) system ID for different content providers, column 6, lines 10-14; column 7, lines 16-23. Dynamically leases and releases addresses for industrial devices, column 37, lines 45-65). Hite does not specifically teach re-discovering periodically. However, “official notice” is taken that Dynamic Host Control Protocol (DHCP) is a dynamic address assignment protocol that re-discovers periodically. It would have been obvious to one of ordinary skill in the art at the time the invention was made that incorporating DHCP’s periodically in Hite’s system for interconnecting CAN networks and the Internet would have improved robustness. The motivation would have been to ensure that addresses are returned to the address pool when devices leave the network.

[claim 16] Hite taught the proxy component includes a RS-232 interface that facilitates receiving and conveying information with the industrial devices (column 9, lines 54-62). Hite does not specifically teach a Universal Serial Bus (USB) interface. “Official notice” is taken that USB is well known in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made that incorporating USB in Hite’s system for integrating CAN networks and the Internet would have improved flexibility. The motivation would have been to reduce complexity and improve plug-and-play capabilities.

[claim 17] Hite does not specifically teach the non-TCP/IP-based networks employ at least one of a Control & Information Protocol (CIP) network and a Data Highway Plus (DH+) network. Hite does not specifically teach Ethernet/IP. However, Hite does teach

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communication according to the Ethernet and IP protocols in system 10. "Official notice" is taken that Ethernet/IP is well known in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made that incorporating Ethernet/IP (e.g. CIP) in Hite's system for interconnecting CAN networks and the Internet would have been an upgrade. The motivation would have been gain the advantages associated with Ethernet/IP which is specialized for control area networks.

8. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hite in view of Barber et al., USPN 6,744,771 (hereafter referred to as Barber).

[claim 8] Hite does not specifically teach a specific security mechanism. However, Barber taught the interface component further provides a security mechanism that mitigates device access by unauthorized requesters (proxy server 76, column 6, lines 27-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made that incorporating Barber's security mechanism in Hite's system for interconnecting CAN networks and the Internet would have improved security. The motivation would have been to protect the system from unauthorized access.

[claim 9] Barber taught the security mechanism is based on at least one of a policy, a password, a firewall, a code, an identity, a log-on, and an address (software code embodied on proxy server 76, column 6, lines 27-31).

Response to Arguments

9. Applicant's arguments filed April 10, 2008 have been fully considered but they are not persuasive.

10. Applicant argues that Hit taught the control system coupled to the internet in Figure 2.

a. According to Figure 2, subsystem 10, which is a TCP/IP, network is coupled to a subsystem 30, which a non-TCP/IP network.

11. Applicant argues that Hite does not search or discover a non-TCP/IP network.

b. Applicant's language recites "search" or "discover" devices on a non-TCP/IP network. The claim language does not require the "search" or "discover" mechanism being over the non-TCP/IP network. Therefore, what applicant argues and the scope of the claims are very different.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrice Winder whose telephone number is 571-272-3935. The examiner can normally be reached on Monday-Friday, 10:30 am-7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on 571-272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrice Winder/
Primary Examiner, Art Unit 2145

July 21, 2008